CLAIMS

What is claimed is:

1. A method of manufacturing a drug eluting implantable medical device, comprising:

applying a composition to an implantable medical device, the composition including a polymer, an active agent and a solvent;

allowing the solvent to evaporate to form a dry coating, the dry coating comprising less than about 2% residual fluid content (w/w);

applying a fluid to the dry coating, the fluid being substantially free from any polymer; and

allowing the fluid to evaporate from the coating.

2. The method of Claim 1, wherein fluid is substantially free from any active agents.

3. The method of Claim 1, wherein the active agent is at least partially soluble in the fluid.

4. The method of Claim 1, additionally comprising prior to applying the composition, forming a primer layer on the surface of the stent.

5. The method of Claim 1, additionally comprising forming a barrier layer on the dry coating wherein the application of the fluid is performed prior to forming the barrier layer.

6. The method of Claim 1, wherein the device is a stent.

7. The method of Claim 1, additionally comprising forming a barrier layer on the dry coating wherein the application of the fluid is performed subsequent to forming the barrier layer.

8. The method of Claim 1, wherein the polymer comprises an ethylene vinyl alcohol copolymer, an ethylene-vinyl acetate copolymer, poly(vinylidene fluoride-co-hexafluororpropene), poly(butylmethacrylate), or a combination of the same.

9. The method of Claim 1, wherein the dry coating comprises less than about 1% residual fluid content (w/w).

10. The method of Claim 1, wherein the active agent is rapamycin, 40-O-(2-hydroxy)ethyl-rapamycin, or a functional analog or structural derivative thereof.

11. The method of Claim 1, wherein subsequent to the act of applying the fluid the total content of the active agent in the coating is at least 80% of the total content of the active agent in the coating prior to application of the fluid.

12. The method of Claim 1, wherein the duration of exposure is sufficient to decrease the release rate of the active agent from the coating after the coating has been implanted into a biological lumen.

13. The method of Claim 1, wherein applying the fluid includes spraying the fluid onto the coating or immersing the device into a bath of fluid.

14. The method of Claim 13, wherein the stent is immersed for about 30 minutes to about twelve hours.

15. The method of Claim 1, wherein the fluid is selected from the group consisting of chloroform, acetone, water, dimethylsulfoxide, propylene glycol methyl ether, iso-propylalcohol, n-propylalcohol, methanol, ethanol, tetrahydrofuran, dimethylformamide, dimethylacetamide, benzene, toluene, xylene, hexane, cyclohexane, pentane, heptane, octane, nonane, decane, decalin, ethyl acetate, butyl acetate, isobutyl acetate, isopropyl acetate, butanol, diacetone alcohol, benzyl alcohol, 2-butanone, cyclohexanone, dioxane, methylene chloride, carbon tetrachloride, tetrachloroethylene, tetrachloro ethane, chlorobenzene, 1,1,1-trichloroethane, formamide, hexafluoroisopropanol, 1,1,1-trifluoroethanol, acetonitrile, and hexamethyl phosphoramide and a combination thereof.

16. The method of Claim 1, wherein the fluid is only applied to a portion of the device along the length of the device.

17. The method of Claim 1, wherein the solvent and the fluid are different.

18. The method of Claim 1, wherein subsequent to the evaporation of the fluid the release rate of the active agent is less than about 30% of the total active agent in 24 hours.

19. The method of Claim 1, wherein the temperature of the fluid is greater than room temperature.

20. The method of Claim 1, wherein the temperature of the fluid is equal to or greater than the glass transition temperature of the polymer.

21. The method of Claim 1, wherein the application of the fluid to the dry coating causes the polymer in the coating to swell.

22. The method of Claim 1, wherein the application of the fluid to the dry coating causes the percent crystallinity of the polymer in the coating to increase.

23. The method of Claim 1, wherein the polymer is a blend of two or more polymers.

24. The method of Claim 1, wherein the polymer is a semicrystalline polymer having about 10 to 75 percent crystallinity prior to the application of the fluid.

25. The method of Claim 1, wherein the polymer is an amorphous polymer.

26. The method of Claim 1, wherein the polymer is a block copolymer or a graft copolymer.

27. The method of Claim 1, wherein the polymer exhibits two or more glass transition temperatures, and wherein the temperature of the fluid is equal to or greater than the lowest exhibited glass transition temperature of the polymer.

28. The method of Claim 1, wherein the polymer exhibits two or more glass transition temperatures, and wherein the temperature of the fluid is equal to or greater than the highest exhibited glass transition temperature of the polymer.

29. A method of manufacturing a stent coating, comprising:

applying a composition to a stent, the composition including a semicrystalline polymer and a solvent;

allowing the solvent to evaporate to form a dry coating, the dry coating comprising less than about 2% residual fluid content (w/w); and

exposing the coating to a fluid for a sufficient duration to increase the crystallinity of the polymer in at least a portion of the coating, the fluid being substantially free from any polymer.

30. The method of Claim 29, wherein the polymer has about 10 to 75 percent crystallinity prior to the act of exposing.

31. The method of Claim 29, wherein the polymer comprises an ethylene vinyl alcohol copolymer or poly(vinylidene fluoride-co-hexafluororpropene).

32. The method of Claim 29, wherein the dry coating comprises less than about 1% residual fluid content (w/w).

33. The method of Claim 29, wherein exposing the coating to a fluid includes immersing the stent into a bath of fluid.

34. The method of Claim 33, wherein the stent is immersed for about 30 minutes to about twelve hours.